Care and Handling of New Instruments

Unpacking
All surgical instruments are carefully packaged and shipped to you from the manufacturer. The persons unpacking new instruments are responsible for making sure the shipping container is undamaged and that all original wrapping is intact. Carefully remove each instrument from its container and inspect it to be certain it is in perfect condition. Notify the manufacturer immediately of any problems. Whether receiving a new instrument or a repaired instrument, always inspect it as the first step. Do not bring shipping boxes into the operating room because they are a potential source of germs and bacteria.

Inspection and Testing
Inspect all microsurgical instruments under magnification. An operating microscope is the best source of magnification and is usually readily available. If an operating microscope is not available, a handheld magnifier of +10 diopters or a magnifying lamp will suffice. Gem blades require additional inspection under a micrometer. While visually inspecting instruments, mechanically test each item. The following require special attention:

- Fine-tipped forceps and calipers—Check for proper alignment. Forceps teeth must mesh perfectly and caliper tips must meet perfectly. Tying surfaces of forceps must meet evenly over the entire length of the tying platform.
- Scissors—Check for alignment and burrs at the tips. Scissors should operate smoothly, and the tips should not have any space between them when closed. Cutting edges should be sharp.
- Needle holders—Check for alignment and ability to grasp. Needles should not be moveable by hand when locked into the needle driver.
- Gem blades—Check for nicks on cutting edges. The blade should extend and retract smoothly.
- Ratchets—Check for alignment. They should be perfectly aligned and close securely. They should not be loose or spring open easily.
- All instruments—Check for loose screws, pits, corrosion, or cracks.

Manual Cleaning
Always clean instruments as soon as possible. Do not soak instruments in saline or chlorinated solutions. Microsurgical instruments should be hand washed before placing them in a washer or sterilizer. Wash instruments with a soft plastic-bristle brush or lint-free instrument wipe using warm critical water and a neutral pH detergent. An alkaline pH (greater than 7.0) will cause staining, and an acidic pH (less than 6.0) will cause pitting. A non-neutral pH detergent may
also damage the instrument’s protective finish. Do not use any abrasive cleaners, and rinse thoroughly with critical water. Thoroughly dry instruments manually using forced compressed air before storing them.

**Gem Blades**

Gem blades require special handling. They are expensive and fragile. For added protection, keep gem blades in their own containers away from the basic instrument tray. Inspect all new gem blades under magnification. Notify the manufacturer if the blade has any defects.

Clean new gem blades before first-time use or storage. Never clean or soak a gem blade in saline. Some manufacturers do not recommend immersing the entire knife in solution, as the force of fluids may break down lubricants in the internal mechanism. Always follow the manufacturer’s instructions.

Commercially prepared gem blade cleaners are available. They consist of a sponge soaked in a mild cleaning solution that can break down the bio-burden on the blades. The following are two other methods of cleaning gem blades.

**Soaking method:** Following the manufacturer’s recommendations, place the retracted gem blade in its protective tray and place the tray and blade into the enzyme bath. Gently move the blade back and forth to fill the blade cavity with the solution. Soak the instrument following the manufacturer's recommendations for time allowance. Remove from the bath and rinse thoroughly with critical water. Inspect the blade and store it in its protective tray.

**Ultrasonic method:** Place the retracted gem blade—always in its protective tray—into an ultrasound bath of either (a) critical water, (b) critical water with an enzyme cleaner, or (c) hydrogen peroxide. Note: Do not use hydrogen peroxide for blades with titanium handles because it will discolor the handle. Gently move the blade to remove any air from the blade cavity. Run the ultrasound cleaner for a minimum of 5 minutes or follow the manufacturer’s recommended practices. Thoroughly rinse the blade with critical water. Inspect the blade and store it in its protective tray.

**Protective Covers for Instrument Tips**

Handling can easily damage the fine tips on many microsurgical instruments. Always keep a protective cover on the delicate tips when the instrument is not in use. Use manufactured tip covers or soft silicone tubing (if it has adequate wall thickness). Do not use plastic or rubber tips that cannot be autoclaved. High steam sterilizer temperatures may melt or shrink some plastic or rubber covers around instrument tips, rendering the instrument unsafe for patient use.